Summary
Mathematics: Examples of Changes from January Draft to March Draft
Common Core State Standards

Grade 1 **Content Changes**	
January Draft	**March Draft**
Base Ten Computation • a) Count to 100 or beyond, switching appropriately to the new decade after a 9 has been said in the ones place. • c) Easily write numerals to 20; write numerals to 100.	**Number – Base Ten** • 2) Starting at any number, count to 100 or beyond. **(Adding the phrase, "Starting at any number" increases the depth/rigor of the activity. This ensures that students are actually mastering the concepts of counting versus simply recalling/memorizing a series of sequences heard.)** • **1) Read and write numbers to 100.** (Much clearer language – how do you measure "easily" write numerals….) • **NEW:** 6) Demonstrate fluency in addition and subtraction within 10. **(This increases rigor and lays the foundation for later mathematics as mastery of these facts will assist students with higher mathematics.**
Shapes • **(K)** c) Decompose circles and rectangles into 2 and 4 equal parts. Describe the parts using the words "halves" and "quarters", and using the phrases "half of" and "quarter of". Describe the wholes as twice or four times as large as the parts. • 2) Decomposing larger shapes into equal-sized parts creates fair shares.	**Geometry** • 5) Decompose circles and rectangles into two and four equal parts. Describe the parts using the words halves, fourths, and quarters, and using the phrases half of, fourth of, and quarter of. Describe the whole as two of, or four of the parts. Understand that decomposing into more equal shares creates smaller shares. **(This was an appropriate move as there was concern regarding subdividing shapes at the kindergarten level. In addition, the inclusion of the phrase "equal shares creates smaller shares"…this is foundational fraction work – very appropriate for 1st grade.)** • Removed from 1st grade; (**Elements have been captured in another standard, i.e., the concept of fair shares.)**

Grade: 5 **Content Changes**	
January Draft	**March Draft**
Fractions	**Number – Fractions**
• 1) Fractions 1/b and (nab)/(n x b) are equal: for 1/b is N copies of 1 / (n x b), so a/b is n x a copies of 1/(n x b). Example: 1/3 is 4 copies of 1/12, so 2/3 is 8 copies of 1/12; thus 2/3 is 8 copies of 1/12; thus 2/3 = 8/12. From 4th a) Reason about fractions to establish equivalences between related fraction (e.g. 3/10 = 30/100, 9/12 = ¾).	• 1) Understand fraction equivalence: a. Multiplying the numerator and denominator of a fraction by the same nonzero whole number produces an equivalent fraction. For example, 2/3 = (2 x 4/ (3 /4) = 8/12. (1/3 is 4 copies of 1/12, so 2/3 is 8 copies of 1/12). b. Equivalent fractions correspond to the same point on a number line. In Grade 5, all number lines begin with zero. c. When the numerators of equivalent fractions are divided by their denominators, the resulting quotients are the same. **(Language is clearer, which makes the standard accessible to all stakeholders.)**
• 3) Multiplying unit fractions gives a new unit fraction with Denominator equal to the product of the initial denominator equal to the product of the initial denominators. For example, 1/3 x ½ = 1/(3x2). The product 1/3 x ½ is 1 part when a whole of size ½ is divided into 3 parts, e.g., it is "1/2 of ½".	• Removed from 5th grade.
• 5) Dividing a unit fraction 1/b by a whole number n gives a unit fraction with denominator n x b, because when 1/b is divided into n equal parts, the size of each part is 1/(nxb). For example, 1/3 divided by 2 = 1/6 and 6), Dividing a whole number n by a unit fraction 1/b gives a whole number n x b, because, as there are b units of 1/b in 1, there are n x b units of 1/b in n. For example 2 divided by 1/3 = 6.	• 9) Understand division of unit fractions by whole numbers and division of whole numbers by unit fractions: *a)* Dividing a unit fraction 1/b by a whole number a results in a smaller unit fraction 1/a x b. *For example, 1/3 divided by 2 – 1/6 because when 1/3 is divided into 2 equal parts, the size of each part is 1/6; a third of a pound of cheese shared between two people will give each person a sixth of a pound. (Using the inverse relationship between multiplication and division: 1/3 divided by 2 = 1/6 because 1/6 x 2 = 1/3.)* *b)* Dividing a whole number by a unit fraction 1/b results in a greater whole number a x b. *For example, 2 divided by 1/3 = 6 because 6 is the number of 1/3x in 2; two pounds of cheese will make six portions of a third of a pound each. (Using the inverse relationship between multiplication and division; 2 divided by 1/3 = 6 because 6 x 1/3 = 2.*

Grade: 8 Content Changes	
January Draft	March Draft
The Number System • Use rational approximations to compare the size of irrational numbers, locate them approximately on a number line and estimate the value of expressions (e.g., π^2).	**The Number System** **Detailed example explanations are included** • Use rational approximations (including those obtained from truncating decimals expansions) to compare the size of irrational numbers, locate them approximately on a number line, and estimate the value of expressions (e.g., π^2). *For example, show that the square root of 2 is* **between 1 and 2, then between 1.4 and 1.5, and explain how to continue on to get better approximations.**
Functions and the Situations They Model Solving two systems of linear equations is in High School Standards: • Graph a system of two linear or quadratic equations in two unknowns and estimate the solution from a graph • Solve linear systems of equations algebraically, focusing on pairs of linear equations in two variables	**Expressions and Equations** Domain name has changed and **better aligns** with the progression of high school and College and Career Readiness Standards. Systems of linear equations have been **added** as a cluster. • Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. • Solve simple cases by inspection. • Solve and explain word problems leading to two linear equations in two variables. • Solve problems involving lines and their equations. Standard language is **clearer** • Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously.
Functions and the Situations They Model • The problem of finding where two linear functions have the same output value for a common input value leads to an equation in one variable; the solution or solutions (if any) can be visualized as the input value(s) where the graphs of the functions intersect.	**Functions** • Compare properties of two functions represented in different ways (algebraically, graphically, numerically in tables, or by verbal descriptions). *For example, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change.*

High School Content Changes	
January Draft	March Draft
In this version states were asked to "draw the line" between common core standards and Advanced (ADV) standards. Kentucky high school teachers and postsecondary faculty were in almost complete agreement as to where the line should be placed. After comparing the notes from the January draft to the February draft, KDE consultants concluded that KY high school teachers and postsecondary faculty were in agreement with CCSSO with the exception of the Probability and Statistics Standard (too much) and a few other standards, which were seen to be beyond the College and Career Readiness Standards.	This draft indicates the advanced standards with "STEM" (Science, Technology, Engineering and Mathematics). From the February to March draft some ADV are included in the common core standards, while others that were not marked ADV are now included as common core standards, instead of STEM.
Format of standards Core standards – Standards Understandings Skills	Format to get to standards Domains Clusters Standards (defined as what students should understand and be able to do)
Number and Quantity – Not included in the January draft – some of the understandings and skills that would be considered Number and Quantity are listed in other core standards, i.e., Complex numbers. No reference is made to link to College and Career Readiness Standards (September 2009).	Number and Quantity is one domain. The March version does a better job linking to College and Career Readiness Standards. Number and Quantity are included as separate standards in the College and Career Readiness Standards (September 2009).
January version there was no Algebra standard. Expressions and Equations (understanding and skills) were listed separately, similar to the format of the College and Career Readiness Standards (September 2009).	The **Algebra domain** includes the clusters and standards from the previous version. Some standards have been rewritten for clarity, i.e., **March version** 2. Understand that complicated expressions can be interpreted by viewing one or more of their parts as single entities. **January version** Students understand that 4. Complex expressions can be interpreted by "chunking" : temporarily viewing a part of the expression as a single entity. (The words "complex" and "chunking" have different meanings in the mathematics than how they are being used in this standard.) **March version** Cluster "Creating equations that Describe Numbers or Relationships" **January version** "Building Equations to Model Relations between Quantities"